

## Case Study

USORWW-757.001

**IXOM**  
WATERCARE

# Energy Saving Success with SolarBee® Wastewater Mixers

Improved mixing and treatment leads to a 30-month project payback.

**Topics:** wastewater, complete mix, partial mix, sludge reduction, energy savings



The Superintendent drives his boat by one of the SolarBee® mixers at the wastewater treatment plant.

**System Overview:** Municipal and industrial wastewater lagoon system serving two communities.

**Primary Lagoon:** Complete Mix  
Surface Area: 2.8 acres (11,000 m<sup>2</sup>)  
Operating Depth: 12 feet (3.7 m)  
Total Volume: 6.9 MG (26,119 kL)  
Influent: 90% municipal, 10% industrial  
Flow: 1.5 MGD  
Hydraulic Retention Time: 4.6 days

**Secondary Lagoon:** Partial Mix, Three (3) Cells  
Total Surface Area: 35.2 acres (142,450 m<sup>2</sup>)  
Operating Depth: 20-25 feet (6-7 m)  
Total Volume: 138.8 MG (525,415 kL)  
Influent: 50% municipal, 50% industrial  
Flow: 12 MGD  
Hydraulic Retention Time: 11.6 days

**Pre-Deployment Conditions:** Extremely high aeration energy costs and excessive sludge buildup. When the Paper Mill was discharging, the Secondary Lagoon was using approximately 550 hp/day for aeration and mixing.

**Project Objectives:** Reduce high aeration energy consumption with SolarBee® mixing. Improve overall processing and help reduce excessive sludge buildup.

**“We’re saving more money than we expected and we’re getting better mixing and better treatment.”**

## Case Study (cont'd)

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**Solution:** Seven (7) SolarBee® SB10000V18 Floating Wastewater Mixers were deployed into the Secondary Lagoon in September 2010.

Two (2) additional SolarBee® SB10000V18 Floating Wastewater Mixers were deployed into the Primary Lagoon in March 2011.

**Results:** The acquisition of the SolarBees was part of the City's decade-long energy-saving plan for its WWTP. About 70% of the total purchase cost was offset by a grant from the Bonneville Power Administration's Energy Smart Industrial Program.

Aeration needs in the Secondary Lagoon decreased approximately 52% from 550 hp/day to 266 hp/day while still meeting dissolved oxygen, BOD and TSS requirements. These savings far exceeded the original project goal giving an estimated payback period of 30 months!

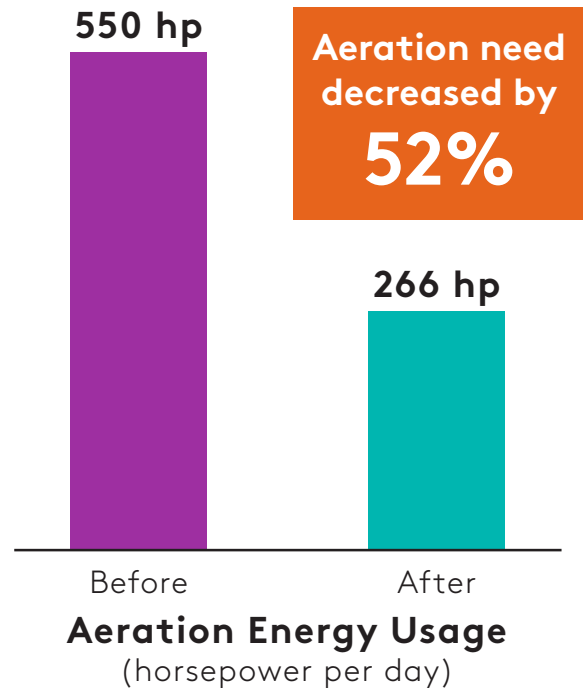
The Customer is very happy with the significant energy cost savings they have experienced and appreciates the SCADA monitoring capabilities.

**Update (January 2012):** The City won the Oregon Leaders Award, which recognizes Oregon industrial sites that demonstrate leadership in pursuit of energy efficiency. According to an engineering study, the City should save ~2.2 million kilowatt hours per year. The superintendent noted "We're saving more money than we expected and we're getting better mixing and better treatment."

**Update (April 2019):** The two (2) SolarBee® SB10000V18 Floating Wastewater Mixers in the Primary Lagoon were moved into the Secondary Lagoon to increase energy saving potential.

**Update (March 2023):** Over the 10+ years since deployment, an excellent communication and support relationship has been maintained with the Customer performing most of the maintenance with their own personnel. All the original SolarBee® equipment are still in service.

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**30-month project payback!**

### Location & Contact Information:

Further information may be available upon request. Please contact Ixom Watercare by phone at +1 866-437-8076 or by e-mail, [watercare@ixom.com](mailto:watercare@ixom.com)